GAS JOURNAL, MAY 6, 1942

VOL. 238 94th YEAR No. 4120

EDITORIAL NOTES

FUEL RATIONING

AS we went to press with last week's "JOURNAL" the Beveridge report on fuel rationing was published amid a storm of criticism, in the House and by the Press, directed in impassioned vein against the idea of rationing a home-produced fuel and the products derived from it—gas, coke, and electricity. Chief and most important among the views advanced against it was that the logical way to tackle the problem of bridging the gap between demand and production was to increase coal production at the pits by the temporary release if needs be of ex-miners from the Forces and from munition industries (recommendation of Select Committee on National Expenditure, "JOURNAL," Nov. 12, 1941), and that any scheme would be so difficult and costly to administer as to make it impractical. Criticism was, in fact, in full blast prior to the publication of the report, and under the stress of fervid opposition the Government promised that an early opportunity for a debate on the report and the recommendations would be afforded. The proposals will be brought to the test of debate in the Commons. Throughout, the Government has held firm that rationing of fuel is essential to the war effort.

We need not go into details of the progress of this liveliest of controversies, of the several meetings of back-benchers of political parties. We think that many of the arguments advanced, obviously in sincerity, have come from the heart rather than the head, and that in stressing the difficulties of any fuel-rationing scheme sight has been lost occasionally of the fundamental issues at stake. As the war advances, so does the demand for coal in this country for war purposes outstrip supply. Exhortations to the domestic consumer to economize in the use of fuel have had the unhealthy reaction in increased consumption of the annual order of a million tons of coal. Domestic consumption has not been evenly spread; the tendency towards mal-distribution of demand has grown and grows. Large sections of the community have a good deal of money to spend, and it is quite evident that, granted complete freedom in the purchase of an unrationed commodity, their "hang the expense" attitude could easily result in a "cornering" of the domestic fuel market. We are discussing not ethics, but facts.

Warmth, the provision of cooking and water-heating facilities and a reasonable degree of comfort are individual necessities vital to individual well-being and general morale, and it is essential that everybody should be assured of a reasonable supply of fuel under war conditions, however adverse. Demand for coal and its derivatives for war purposes grows; equitable distribution of coal for domestic purposes and likely domestic contingencies must be planned. This, to our mind, is the basic consideration, and it must be coupled with another basic consideration—increased coal production. The two must be organized not separately but together. Increased production is certainly needed; fair distribution is equally needed, and because of this need we have no quarrel whatever with the idea of domestic fuel rationing, though regarding the means our mind is open. Concerning production, the tackling of the problem at its source, this question is outside our sphere. What knowledge we have of the peculiar difficulties of the mining industry and of the temperament, outlook, and habits of the miner himself leads us to suggest that the return to the pits of ex-miners from the Forces is neither the facile nor the only solution to present under-production. It has been put forward in responsible quarters that with a relatively small additional effort, no greater, in fact, than is called for from other sections of the community at this time, all the additional coal needed to meet our war requirements could be obtained. The opinion has been stated (the considered view, by the way, of both mine owners and mine workers) that in at least one major coalfield an increase in output of 10% could be obtained now without undue strain upon the miners. We will not pursue this argument, but we would emphasize again that, whatever the production, the problem of the equitable distribution of fuel for domestic purposes remains, and it is paramount that a determined attempt should be made at its solution.

Broadly, then, we cannot think that the Gas Industry is against the principle, at the present juncture, of domestic fuel rationing, though, again broadly—and this without sectional bias—we regard it as unfortunate, and as a heritage of mistaken peacetime fuel policy, that a demand in the national interests, as we said last week, for the utmost production of gas, coke, and tar and for the maximum extraction of benzole and toluole should be accompanied by restrictions on gas usage even for domestic purposes. So we come to the means. The Beveridge report has been published (the recommendations are set out later in to-day's "JOURNAL," p. 206), and the Gas Industry, in common with so many other interests and so many individuals, will have had the opportunity of discussing the findings, pulling them to pieces if it has so thought fit, and, perhaps, of offering alternative propositions. The Industry should be able—though we think it is unable—to speak with one voice on the matter. It has had nearly three years to frame its policy on this one single point, and it has only itself to blame if its policy in the matter is woolly and indeterminate. We have discussed the report with some satisfaction with Sir William Beveridge, and with rather less satisfaction with the powers that ought to be in the Gas Industry. Having thought about the means in general and the Beveridge report in particular, we should be the last to minimize the difficulties and complications of putting into practical effect any domestic fuel-rationing scheme. Of course it will be an irritating procedure, beset with problems, one of them being the question of staffing, at any rate in the early stages. The report frankly admits the seriousness of the problem in respect alike of numbers and of quality, and speaks of a requirement of the order of 15,000 temporary clerks (eventually to be reduced perhaps to less than two-thirds of that number), and of the need for local fuel officials having competence and understanding and to whom must be given "considerable discretion." The need is recognized for protecting the staffs of fuel suppliers against further depletion and, indeed, of adding to their present staffs.

The position in regard to the Beveridge report is, then, fluid and uncertain, though we think that whatever happens to the particular recommendations and however much the proposals may be modified and maybe simplified, it will stand as an exceedingly useful document. It is recorded that the representatives of suppliers, "while they were anxious to avoid rationing if possible and emphasized the difficulties of any scheme as a ground for preferring the alternative of increased production, emphasized also their readiness to co-operate wholeheartedly in the scheme should rationing be decided on by the Government." Again, "the main principles of the scheme . . . were recognized by most of the suppliers' representatives, though in the case of gas and electricity with some division of opinion, as the right principles to be embodied in any scheme of rationing that might be found necessary." As is well known, the principle of "points" rationing is recommended in the report (each house with a fuel ration calculated on present needs and not by reference to previous consumption, and in addition each person having a personal ration). We regard this as a fairer basis of rationing than past consumption, though it would appear that some in the Gas Industry are inclined to favour the basic past-consumption assessment on the grounds

of simplicity, which grounds we consider insufficient. However, in the present state of flux and uncertainty regarding the report, detailed consideration of this aspect is rather beside the point. The report does not suggest anything at all explicit concerning the proposed household ration, and the exchange values suggested (1 cwt. of coal as being equivalent to 1½ cwt. of coke, 5 therms of gas, 90 units of electricity, and 2 gallons of paraffin) are subject to "further examination." Much is, in fact, discretionary, and this, no doubt, is where the problems of the Beveridge scheme or any other likely scheme really start—problems which demand, and we are assured will be met with, full co-operation from the Gas Industry.

PRODUCER GAS FOR MOTOR TRANSPORT

AFTER a prolonged period of comparative silence on the matter the use of producer gas in place of petrol and heavy oil for motor transport has of late been very much in the news. The subject was brought into prominence by a debate in the House of Lords on March 11, when the use of producer gas on the largest possible scale was warmly advocated by a number of speakers on a variety of grounds, notably the aggravation of the oil position by events in the Far East and the vital need for reducing the strain on shipping. The reply of the Minister of War Transport on that occasion did not strike us as being particularly satisfying. At the time we suggested that he gave disproportionate weight to the negative aspect, to the difficulties of the proposition, and we expressed the opinion that the point at issue was not whether producer gas is inferior to petrol or heavy oil for the purpose but whether it can be used in place of imported oil—and this seems to have been proved well enough. We pointed out that the Government has been investigating the problem since 1937, and we asked for decision rather than polemics of a theoretical nature ("JOURNAL" of March 18). We recall that debate to bring focus to bear on more recent happenings.

On April 28 there was a further debate on the subject in the House of Lords, when the Duke of Montrose moved that "a scheme for converting 50,000 transport vehicles to producer gas propulsion, with a view to saving 500,000 tons of petrol for the fighting services, shall be prepared and put in force as soon as possible." He spoke of the producer gas unit brought out by the Government, and referred to it as an "engineering haggis" which had been an "absolute failure." The motion was carried by 20 votes to 19—a technical defeat of the Government which was accompanied by a certain amount of Parliamentary laughter. This was after the Minister of War Transport had said that the Government would have done much harm had they rushed into operation an ill-conceived or hastily devised scheme. He explained that the Government had recently received two reports (one from the Henley Committee, the other an interim report from the Technical Committee on Producer Gas), which for security reasons he could not make public. And he explained, too, that the Government had decided that immediate action should be taken to require operators to equip as soon as practicable 10,000 commercial vehicles with a Government producer of new design—not the one originally designed. He added that before making the recommendation the Government had had under review every producer in operation.

The day following this announcement the Mobile Producer Gas Association met in London and urged the putting into operation of a scheme for converting 50,000 road vehicles to run on producer gas, thereby backing the motion of the Duke of Montrose. This newly formed Association comprises the independent proprietary gas producer manufacturers, and the scheme envisaged provides for a standardized gas producer. The Chairman of the Association, Mr. J. W. Noel Jordan, stated that the British Coal Utilization Research Association, with the assistance of the D.S.I.R. and the co-operation of industrial concerns, had evolved a producer plant which could be manufactured and used in large numbers—*i.e.*, given the necessary raw materials and labour and the necessary supplies of suitable fuel. We know nothing about the new Government producer and can obviously pass no judgment on it. At a Press conference Mr. Jordan said his Association, the M.P.G., had no details of it, but added that some of the members were sceptical. On the other hand, the Association's technical experts had tested the plant evolved by the B.C.U.R.A. (the plant, by the way, advocated by the Duke of Montrose) and found it satisfactory. The Vice-Chairman, Mr. E. R. Slattery, gave the present production capacity (with steel available, of course) of the M.P.G. Association as 120 plants a week—an output which, within six weeks, could be increased to 1,000 plants a month. At the meeting of the Association the question of fuel supplies was, to our mind, discussed somewhat airily. We are left at the moment, it would seem, with the "official" Government scheme using the Government producer (which the M.P.G. Association would, we gather, like to be invited to manufacture if it considers it a good technical proposition) and the unofficial scheme designed to employ the producer of B.C.U.R.A. pattern. In the meantime where is the fuel? We believe that the Gas Industry—again granted the availability of labour, plant, and raw material—could easily produce in large quantities fuel suitable for gas producers.

Then, on Thursday last—*i.e.*, the day following the M.P.G. Association meeting—the Institute of Fuel had a Paper with a mass of technical data giving the results of extensive bench and road tests of passenger vehicles run on producer gas over a million miles of operational service. In this Paper, a very lengthy contribution which led to an animated discussion marked on occasion by a certain amount of acrimony, the Authors, Dr. S. G. Ward and Mr. W. J. Morison, the former of Birmingham University and the latter of the Eastern National Omnibus Company, recorded results jointly achieved by the Tilling group of omnibus companies and the Mining Department at the University. At present there are in this group 43 vehicles operating on producer gas in various parts of the country, the fuel used being for the most part activated anthracite; and in the main the vehicles are fitted with Eastern National modified Government type producers (*i.e.*, original Government model). Two small omnibus depots in the group are operated entirely by vehicles running on producer gas, and between them they save 78,500 gallons of petrol a year. The original Government producer was not described by the Authors as an "engineering haggis." On the contrary, they stated that it has "the great advantage of simplicity of design and operation, and, with modifications, gives satisfactory service with 7-litre engines."

We hope to refer to this Paper later, though in the meantime, in view of the Authors' praise of the performance of the modified Government producer of the old pattern, we may query why the type was abandoned, as seemingly it has been. For the moment we will content ourselves with two observations from it. The first is the conviction that the use of portable gas producers has reached a stage where operators of vehicles can convert with confidence to this form of fuel. The second is that there is a wide field of possible application of portable gas producers in addition to their use for essential transport purposes and in which further savings of imported fuels can be made. The Authors maintain, for example, that many Admiralty, Army, and Air Force vehicles could well be powered by producer gas engines, converted from existing engines, for use in this country; and they suggested in their Paper that the appropriate Ministries should investigate this possibility, especially for some of the Home Service vehicles operating on routine supply, which vehicles could use producer gas to the national advantage.

The fact that goods made of raw materials in short supply owing to war conditions are advertised in the "Journal" should not be taken as an indication that they are necessarily available for export.

Coke Rationing

A modified form of fuel rationing came into operation last Monday. Only 10 cwt. of coke, anthracite, Welsh dry steam coal, and manufactured fuel may be supplied in the next four weeks to residential premises, including hotels and clubs, throughout the country. Directions to this effect have been given by the Secretary for Mines. Occupiers with more than one ton of coke or other fuels rationed from Monday will be barred from increasing their supplies. Overseers may grant extra allowances to avoid individual cases of hardship.

Gas Shortage in Dublin

Rationing of gas—not other fuels—was put into operation many months ago and has been carried out in three stages: First by a gradual reduction of pressure, secondly by a gradual reduction of calorific value, and thirdly by cutting down its use to fixed hours in the day. Pressure has been reduced in the city from a normal of 5 in. to below 3 in. on the peak load. Calorific value was reduced in stages from 475 to 450 B.Th.U., from 450 to 425, and in the third stage from 425 to 400. Before period rationing was introduced, efforts were made by advertising and house-to-house visits to get the public to cut down consumption, but these methods had little effect. Period rationing was introduced on March 3 as follows: Gas was made available from 7 to 8.30 a.m.; 11.30 to 1.30 p.m.; and 5.30 to 10.30 p.m.—on Sundays, 10.30 to 1.30 p.m. These hours were subsequently altered by extending the morning period from 5 a.m., instead of 7 o'clock.

Personal

Mr. RAYMOND PRINCE, General Manager and Secretary of the Peterborough Gas Company, has been appointed successor to the late Alderman I. Whitsed, who was Director and Deputy-Chairman of the Company.

* * *

Owing to indifferent health, Mr. A. M. LAWRENCE has resigned the Chairmanship of the Wakefield Gaslight Company, but will retain his seat on the Board. Mr. A. E. GREAVES, J.P., has been appointed Chairman, with Mr. P. A. MOULTON as Vice-Chairman.

* * *

Formerly a draughtsman with Perth Corporation Gas Department, S.Q.M.S. J. MCLEISH, R.A.S.C., who is at present serving with the Middle East Forces, has been awarded the M.B.E.

* * *

Lieut. C. HALES-FINCH, R.A., Southern Representative of John Wright & Co., Ltd., has been reported missing at Singapore.

* * *

On April 30, the President (Mr. W. M. Selvey) of the Institute of Fuel presented, on behalf of the Council, a silver salver to Mr. P. C. POPE, the Secretary, and a silver rose bowl to Mrs. Pope and Miss Pope. In making the presentation the President recalled that Mr. Pope had been Secretary of the Institute since its foundation, and that in spite of indifferent health during the past year or two he had maintained the affairs of the Institute without a hitch.

Obituary

The death has taken place of Provost WILLIAM WATTS, who was for a long number of years a Director of the Crieff Gas Light Company, Ltd.

1942 "Journal" Directory

The following changes should be noted in order to keep the Directory up to date:

Page	12.	BROADSTAIRS. A. Wells, *E.*, *vice* E. F. Smallbone.
,,	24.	ELLAND-CUM-GREETLAND. J. A. Seabrook, *E.*, *M. & S.*
,,	26.	FOLKESTONE. E. F. Smallbone (Herne Bay), *E. & M.*, *vice* F. Dawson.
,,	32.	HERNE BAY. A. Wells, *E.*, *vice* E. F. Smallbone.
,,	52.	OLDBURY. W. E. Plevin (New Mills), *E. & M.*, *vice* J. Poulson.
,,	68.	THORNBURY. S. G. Callingham (Woodhall Spa), *E. & M.*
,,	72.	UPPINGHAM. J. H. Canning, jun. (Melton Mowbray), *E.*, *vice* G. Stevenson.
,,	78.	WOODHALL SPA. R. Fowler, *E. & M.*, *vice* S. G. Callingham.
,,	88.	KENNOWAY. C. R. Trotter (Langholm), *E. & M.*, *vice* E. L. Farquhar.
,,	129.	S. A. LIGHTING ASSN. C. Clayton, *S.*, *vice* W. Cash, jun.
,,	129.	ORIENTAL. 54, Old Broad Street, E.C. 2.

Letter to the Editor

Standardization of Cooker Thermostats

DEAR SIR,—While Mr. Toogood's remarks ("JOURNAL" of April 22, p. 129) are *àpropos* now that post-war cookers are under consideration, there are objections to his specific recommendation of a thermometric scale for all 'stats.

The object of fitting a 'stat is to ensure that cooking conditions shall be reproducible. It should be realized that there is, in effect, no *temperature* at which any particular food is cooked; it is a matter of rate of heat input. Some foods require a rate within fairly narrow limits, otherwise they do not show the characteristics for which they are valued. They must therefore be cooked in small quantities and with nothing else in the oven. With others there is very great latitude, and these may be cooked with other foods of similar latitude in a filled oven.

When the gas oven thermostat was introduced into this country from America some twenty years ago, the fact that the temperature and distribution of heat in an oven were upset immediately food was put into it were recognized and temperature scales were fortunately avoided.

In general it may be said that from the moment of putting it in the oven, the temperatures of the food and of the combustion products surrounding it are rising. The former never overtakes the latter. The constant temperatures that may be established eventually at various 'stat marks in an empty oven bear no known relationship to the temperatures attained by the foodstuffs cooked at those marks. The whole underlying implications of a temperature scale are, therefore, contradicted by the facts of cooking, and to adopt such a scale would be to suggest a degree of accuracy both unnecessary and misleading.

The point really requiring decision is what is the most satisfactory range of oven temperatures, and what is the most useful number of divisions into which that range should be subdivided. (To avoid confusion perhaps I should say range of heat inputs as shown by the constant temperatures reached by an empty oven.) As Mr. Toogood points out, there is considerable diversity of opinion among the makers of 'stats resulting in "confusing marks of calibration." It is, however, also worth pointing out that the latest work done on 'stat calibration before the outbreak of war was carried out by the Technical Section of the Gas Light & Coke Company and embodied in their own 'stat. If anything further than this is called for, it might be thought advisable to refer the matter to the British Standards Institution, as, indeed, has already been suggested.

48, Grosvenor Gardens, S.W. 1.
May 2, 1942.

Yours faithfully,
ARTHUR FORSHAW.

Melchett Medallist for 1942

The Council of the Institute of Fuel at their last meeting unanimously decided to award the Melchett Medal for 1942 to Dr. Arno Carl Fieldner, the head of the Technologic Branch of the Bureau of Mines in Washington, U.S.A. The work carried out by Dr. Fieldner and under his supervision in connexion with fuel is of such outstanding merit and has been of such great service to industry throughout the world that the Council had no hesitation in selecting the recipient for this year.

In the years before the war the Medallist has presented at the Annual Conference of the Institute in London a lecture dealing with some aspect of his recent work. Naturally, it cannot be expected that Dr. Fieldner will come to England for this purpose under present conditions, but it is hoped that the manuscript of his Melchett Lecture will be received in time to make it available for presentation by someone representing him at a special meeting which it is hoped to hold in October next.

At the final meeting of the session of Peterborough Engineering Society at the Technical School Lecture Hall Mr. RAYMOND PRINCE gave a talk on "The Gas Industry," illustrated with lantern-slides.

The Spring Meeting of the Eastern Counties Gas Engineers' and Managers' Association has been fixed for Wednesday, May 20, at Cambridge, and will be under the Presidency of Mr. F. H. Robinson of Bishop's Stortford.

The New Address of the South-Western Regional Gas Liaison Officer is J. N. Hazeldon, Board of Trade, Hyde Lodge Mansions, Westbury Park, Bristol, 8. Telephone Bristol 38446–7–8.

The Minimum Charge imposed on gas supply by Edinburgh Corporation is to be cancelled as a wartime gesture. This decision was taken at the meeting of the Edinburgh Public Utilities Committee meeting on May 1, when the Engineer reported that consumers on the combined rate system were subject to a minimum charge of 10s., whereas the consumers with two meters had to pay a 10s. minimum for lighting and a minimum of 15s. for heating and power. As far as gas was concerned similar appropriate minimum charges applied, and it had been decided that the need for economy in the use of gas had made it necessary to suspend the minimum charges when rendering accounts.

PROPOSED SCHEME OF FUEL RATIONING

ABSTRACT OF THE BEVERIDGE REPORT

ON Tuesday of last week there was published the Report on Fuel Rationing by Sir William Beveridge, K.C.B., to the President of the Board of Trade (H.M. Stationery Office, price 2d.). The report gives an outline scheme suggesting the most equitable and effective methods available for rationing the domestic consumption of fuel. It has been prepared under considerable pressure of time and some of its details are provisional. The main principles of the outline scheme are comprehensiveness (that is to say, the inclusion of all important fuels) ; a points system with interchangeable coupons; fixing of the ration by assessment of present needs, not as a percentage of consumption in a *datum* period; registration of consumers with suppliers, and control of distribution by the results of this registration.

Fuel rationing, the report points out, presents materially greater difficulties than food rationing. It cannot be expected to work so smoothly. "While I am satisfied that the special difficulties of fuel rationing can be overcome," states Sir William Beveridge, "these difficulties must be faced before a decision to ration is undertaken. There remains the difficulty of staff—a difficulty common now to all extensions of Government activity."

Problem of Staff

The problem of staff is serious, in respect alike of numbers and of quality. The number of temporary clerks required for issue of ration books may be of the order of 15,000 distributed between about 1,500 local Fuel Offices or may be less than two-thirds of that number; no close estimate can yet be made. These are likely to be required for a period of six weeks or possibly two months; after that a small proportion of whatever number was required for issue of the ration books should suffice for current administration. An additional difficulty is that, on the most probable timetable, fuel rationing will require its maximum staff at the very moment when food rationing may be in the same position—namely, from June 15 to July 31. But the question of numbers of staff is less difficult than that of quality. The infinite variety of fuel needs can only be met by giving considerable discretion to Local Fuel Officials; they must have not only competence and standing, but time to exercise that discretion wisely.

The scheme has been devised so as to reduce to a minimum the additional duties of suppliers through rationing, but some additional work in collecting coupons and adjusting their supplies to their sales is inevitable. There are some directions in which economies of manpower in distributing fuel may still be made, by rationalizing the retail trade in coal and by combining the reading of gas and electricity meters, but the need for protecting their staffs against further depletion and indeed of adding to their present staffs was emphasized by all the representatives of suppliers with whom the scheme has been discussed.

The representatives of suppliers, while they were anxious to avoid rationing if possible and emphasized the difficulties of any scheme as a ground for preferring the alternative of increased production, emphasized also their readiness to co-operate whole-heartedly in the scheme, should rationing be decided on by the Government. The main principles of the scheme were recognized by most of the suppliers' representatives, though in the case of gas and electricity with some division of opinion, as the right principles to be embodied in any scheme of rationing that might be found necessary.

Taking into account coal used for gas and electricity and certain other forms of consumption similar to that of ordinary domestic consumers, a saving of 10,000,000 tons a year could be secured by an average cut of about 12½% or one ton in eight. I cannot yet give the actual rations proposed. Further enquiry as to present consumption is needed and is being made. But if a cut of 12½% can be distributed scientifically and equitably over the whole body of domestic consumers, it is hard to believe that it would cause serious hardship. An effective rationing system would give the poorest consumers at least as much as they have received this winter and in many cases more.

Alternatives to Rationing

I began my present enquiry with considerable doubt as to the desirability of rationing fuel and with a preference for the alternative method of improving production, either by concentration of the available labour force on the best seams in the best mines, or by a wartime increase in the statutory hours of work. Even if rationing is practicable, as I believe it is, the question may still be asked whether a deficiency of the order of magnitude named above—namely, 10,000,000 tons—would not be met better and more cheaply by the alternative method of increasing production as the main measure, combining with this an appeal for voluntary economy in households and restrictions on establishments and industries. I am not in a position to judge with special knowledge how much can be expected at once from efforts to increase production, but almost irrespective of these probabilities, I now incline to the conclusion that since rationing on certain conditions is certainly practicable the case for rationing is made out.

The arguments for rationing may be summed up under four heads:

(1) That none of the measures alternative to rationing secures correct distribution of whatever coal there is.

(2) That difficulties of fair distribution in the coming year will be increased not only by diminution of domestic supplies, but by increase of consumers' demand. Additions to consumers' purchasing power through increase of earnings inevitably get directed towards increased consumption of any article that is not rationed.

(3) That provision should be made ahead not for 1942 only but for 1943. Even if 12½% be thought sufficient now, more might be needed later. Prudence suggests the desirability of introducing rationing while it can be mild, so that it may work without disaster if the screw has to be tightened.

(4) That the public will prefer fair compulsion and will reject appeals.

The second and third of these arguments are the most important. If rationing of fuel is ever going to become necessary as the strain of war increases, it should be introduced now, and not later, when, in an untried form, it may break under strain. But, even in the coming winter, it is unlikely that the supplies of domestic fuel, even if no less in total than last winter, can be distributed fairly without rationing, in face of a demand which shows clear signs of growing and will certainly grow unless checked by rationing. There is much to be said for the view that ultimately rationing of all, or nearly all, essentials is the unavoidable consequence of leaving increased purchasing power in the hands of consumers in face of diminishing supplies.

Whatever view be taken on this issue, the vital need now is for a decision one way or the other. If the decision is against rationing, the alternative measures of increased production should be pressed at once with a vigour sufficient to ensure results. If the decision is for rationing to apply next winter, the decision should be such as will make success in rationing possible.

Among the main conditions of success is the setting up forthwith of the necessary central organization—that is to say, a department in the Board of Trade responsible for rationing and control of retail distribution of fuel. This department should take over such portions of the staff of the Mines Department (including Local Fuel Overseers) as are now engaged wholly or mainly on distribution of coal to consumers of all kinds. It must have added to it two or three first rate administrative officers and be given adequate authority to obtain without establishment delays the necessary divisional and local staff.

Immediate safeguarding of the suppliers of fuel against any further depletion of their staff and equipment is necessary, pending further investigation of possibilities of rationalization and economy of manpower.

Supplies of domestic coal required to honour the ration should be given a priority second only to that of operational requirements.

OUTLINE SCHEME OF DOMESTIC FUEL RATIONING

Rationing will cover the domestic consumption of coal, coke, gas, electricity, paraffin, and any artificial fuels mainly composed of coal or coke. Rationing will apply both to private households (to be described in the Rationing Order as "domestic premises") and to establishments of many different kinds, as described later.

The rationing scheme accordingly covers all important fuels except fuel oil, wood, and peat. Use of fuel oil is confined to a limited number of premises, mostly large; its consumption can be controlled and should be reduced in accord with the reductions made in fuel consumption generally. Exclusion of wood and peat from direct rationing does not exclude the possibility of taking them into account in assessing the need of rationed fuel in places where wood and peat are available and in common use.

There will be both a household ration and a personal ration. The household ration will be fixed for each household by an assessment of needs in the period covered by rationing and not as a percentage of consumption in a *datum* period, and will represent the bulk of the fuel available for that household. The personal ration will be a uniform allowance for each individual, to be used in the household in which at any time he finds himself.

All the different fuels will be rationed together under a points system with coupons—that is to say, each household will receive a certain number of coupons representing fuel units to be used for any of the rationed fuels as may be most convenient to it during the rationing period for that fuel.

Every householder will be required to make application to a local Fuel Office for a fuel ration. Application forms will be distributed through the post to all householders.

Each householder will receive a ration book with a number of

coupons for a year's fuel consumption as assessed by the Fuel Office for the household on the basis of the facts in the application form. The coupons will represent units of fuel, each unit being 1 cwt. of coal or its equivalent in coke, gas, electricity or paraffin.

Note.—The exchange values commonly suggested are that 1 cwt. of coal should be treated as equivalent to 1½ cwt. of coke, 5 therms of gas, 90 units of electricity, and 2 gallons of paraffin. But these figures should be the subject of further examination.

Each person entitled to clothing coupons will receive before June 1 a clothing ration book, with a sheet of coupous to be used for obtaining fuel. Each of these coupons will be valid for ½ cwt. of coal or its equivalent in coke, gas, electricity, or paraffin.

Note.—Provisionally it is suggested that the number of fuel coupons in the clothing book should be 15, giving a personal ration of 7½ cwt. of coal a year or its equivalent in other fuels.

Persons above 65 years of age or sick will be allowed to exchange some of their clothing coupons for additional rations of fuel.

Coupons for coal, coke and paraffin will be collected as for food—*i.e.*, either when the supply is ordered or when it is bought or delivered. Coupons for gas and electricity will be collected by the meter reader—that is to say, after consumption has taken place. Any householder who fails to deliver coupons for gas or electricity at a meter reading as required will, in addition to the other penalties for unauthorized consumption under the Defence of the Realm Regulations, be liable to have his supplies cut off. Even if supplies are not cut off at once, excess consumption in the first rationing period will reduce the allowance in a later rationing period.

Rationing for coal and coke will begin from June 1, That is to say, all coal or coke delivered to the householder on and after that date will count against his ration, for the twelve months from June 1, 1942 to May 31, 1943. The personal ration coupons will be available for obtaining small quantities of coal or coke up to 2 cwt. The delivery of larger quantities, particularly those required for stocking, will be recorded by the supplier and made subject to surrender of coupons when the household ration books have been issued. Until the household ration books and coupons become available in August, every person delivering coal for domestic consumption will be required to record the delivery in an authorized form of record and the householder will be required to acknowledge delivery so that when the ration books have been issued coupons for these deliveries can be collected. After the ration books have been issued no further deliveries of coal or coke may be made to any householder until coupons have been collected for deliveries before then.

At the first meter reading after Aug. 15 coupons either from the household or from a personal ration book will be collected by the meter reader for gas or electricity consumed in the time since the previous reading, which will normally have taken place about three months before then. In most cases accordingly rationing will begin to apply to the consumption of gas or electricity during May or June next.

Rationing for paraffin will begin on June 1, the coupons from the personal ration book being used till the household ration books become available. Special arrangements will be made if necessary to enable consumers to buy small quantities of paraffin.

All domestic consumers of coal and coke will be registered with particular suppliers and will be unable to obtain supplies elsewhere. The registration of those not already registered will take place under a Fuel and Lighting Order to be made immediately.

Principles of Household Assessment

In determining the fuel ration to be allowed to each household the Fuel Office will have regard to the following considerations:

(*a*) The locality of the household. For the purpose of fuel rationing Britain will be divided into four regions from South to North and the rations in each region will take account of the lower fuel consumption necessary in the South.

(*b*) Number of habitable rooms in the house.

(*c*) In the case of the larger houses with, say, over 7 rooms, the degree to which each habitable room is occupied, as judged by the numbers of residents.

(*d*) Special circumstances, making extra fuel necessary. The circumstances that will be taken into account for this purpose have not yet been settled finally. They should include, among others, use of the premises for business or professional purposes—*e.g.*, as a shop, consulting room, business office, &c.

(*e*) Any substantial stock of coal, say one ton or more, held by the household at June 1, 1942.

Note.—The rations to be assigned to houses of each size in each locality cannot yet be named, pending completion of an enquiry now proceeding as to actual consumptions under war conditions. If, for the sake of illustration, the standard household ration for a home of a certain number of rooms in London is put at 60 cwt. then, with two inhabitants each with a personal ration of 7½ cwt. under para. 6, the total amount of fuel available in the year would be 75 cwt.; with six inhabitants it would be 105 cwt. These amounts might be increased by additions for special circumstances under (*d*) above, or if some of the inhabitants were old or sick and exchanged clothing coupons for fuel coupons under para. 7. The ration assessment might be decreased on account of coal in stock under (*e*) above.

Establishments

Establishments will include both residential establishments—*i.e.*, those whose main purpose is residential such as boarding schools, hospitals, hotels, and boarding houses, institutions, and non-residential establishments, such as day-schools, places of worship, business offices, shops, restaurants and catering establishments, places of entertainment and resort. In addition to rationing, establishments will be subject to restrictions directed to preventing extravagant or unnecessary use of heat and light.

Excess of consumption of gas and electricity will be punishable by the normal penalties under the Defence of the Realm Regulations as well as by cutting off supplies, if this course proves necessary. Penalties will apply to the occupier of a house in which excess consumption has taken place, even though he may have changed his house. They will apply not only against the merchants or suppliers, but against their agents for delivering solid fuel, or taking meter readings without collecting coupons, or in the case of deliveries of solid fuel above 2 cwt. between June 1 and the issue of household ration books without recording deliveries.

Duties of Suppliers of Gas and Electricity

The main duties of suppliers of gas and electricity under the rationing scheme will be—

(*a*) To collect coupons at each meter-reading after August 15, 1942, and to report to the Fuel Office any case where a householder fails to produce the requisite coupons.

(*b*) To cut off supplies if so instructed by the Fuel Office.

(*c*) To report to the Fuel Office after each quarterly inspection any householder whose consumption in that quarter has been so high as to suggest that he is in danger of exceeding the ration before the year is out, so that a warning may be sent to him.

All coal merchants and coke suppliers are already required to be licensed and to sell only to customers registered with them. Under the rationing scheme they will be required—

(*a*) To obtain coupons either when the coal or coke is ordered, bought or delivered, or, in case of deliveries of 2 cwt. or more at a time after June 1, 1942, but before the household ration books are issued, to enter these on an authorized record.

(*b*) To account, if required, for all coal or coke obtained by them by producing coupons, or their equivalent in acknowledgments of delivery by establishments or industrial consumers.

Supplies to merchants of coal and coke for domestic consumption will be regulated in accord with the estimated needs of their registered customers, so as to secure that all available supplies are distributed to meet rationed requirements.

Every domestic consumer—whether householder or head of an establishment—who can store coal on his premises, should stock as much as he can in summer and autumn to meet his winter needs.

Association of Tar Distillers

At the Annual General Meeting of the Association of Tar Distillers on April 22 the following Officers and Executive Committee were elected for the ensuing year:

President—C. E. Carey, South Metropolitan Gas Company.
Vice-President—S. Billbrough, Yorkshire Tar Distillers, Ltd.
Hon. Treasurer—Capt. Harriss, Burt, Boulton, & Haywood, Ltd.
Hon. Auditor—Mr. E. Hardman, E. Hardman, Sons & Co., Ltd.

Executive Committee

Region.	*Representative.*	*Firm.*
Scotland	Mr. S. Hilton	Scottish Tar Distillers, Ltd.
	Mr. J. Simpson	Shettleston Oil and Chemical Company, Ltd.
N.E. Coast	J. Colligon	Dorman, Long & Co., Ltd.
	W. A. Walmsley	Thomas Ness, Ltd.
N.W. Coast	J. R. Lane	Lancashire Tar Distillers, Ltd.
	C. A. Murray	British Tar Products, Ltd.
N. Midlands	S. Billbrough	Yorkshire Tar Distillers, Ltd.
	Capt. C. F. Ward Jones	United Steel Companies, Ltd.—Rother Vale Branch.
S. Midlands	R. B. Robinson	Midland Tar Distillers, Ltd.
	W. H. Phillips	Staffordshire Chemical Company, Ltd.
London and S.E. Counties	J. H. Olliver	Gas Light & Coke Company.
	Major A. G. Saunders	Burt, Boulton, & Haywood, Ltd.
S.W. Counties	H. H. Bates	South-Western Tar Distilleries.
	Dr. T. H. Butler	Wm. Butler & Co. (Bristol), Ltd.
Wales	Sir Charles H. Bird	South Wales Tar Distillers.
	C. F. Dutton	Powell Duffryn Associated Collieries, Ltd.

Together with the President, the Vice-President, and Past-Presidents (Col. W. A. Bristow and Stanley Robinson).

(*Continued on p. 215*)

GAS DISTRIBUTION*

By W. HODKINSON, *General Manager*, and H. B. TAYLOR, *Chief Engineer*,
West Yorkshire Gas Distribution Company.

(*Concluded from p. 177.*)

Considerations Affecting the Cost of High-Pressure Distribution

Much work has been devoted to this subject and a mass of data assembled, of which only a brief summary can be given here. We are prepared to submit detailed proofs in the form of further Papers to any Association that may be interested.

Design of Gas Grids.—The method used in arriving at the sizes of mains and initial pressures in the typical regional grid considered later is identical to that used by us in everyday practice.

Wayleaves.—Wayleaves, with the possible exception of those from Railway Companies, can materially reduce the average cost of main-laying. Nevertheless, without some such powers as are enjoyed by electricity undertakings, full advantage cannot be taken of this help.

Out of a total of 113,520 yards of main laid we negotiated wayleaves for 23,340 yards, or approximately 20%, made up of 7,690 yards (7%) with Railway Companies and 15,650 yards (13%) with other landowners.

The average expenditure entailed may be summarized:

TABLE III.

Considered as a—	Capital charge.			Revenue charge.		
Licences: *Average per yd. of wayleaves*:	Railways.	Others.	All in.	Railways.	Others.	All in.
	s. d.	s. d.	s. d.	d.	d.	d.
Wayleaves	5/9.50	2/7.14	3/7.75	3.47	1.55	2.19
Damages	/3.34	/1.91	/2.38	—	—	—
Insurances	2/8.50	/1.53	/11.70	1.62	0.08	0.58
Total	8/9.34	2/10.58	4/9.83	5.09	1.63	2.77

Constructional Costs and Charges.—A careful analysis of the costs of construction of the gas grid has been made. From this the following summaries are made, the figures representing costs at which similar work could have been carried out during 1938/39, through typical average country, part rural and part industrial.

TABLE IV.—Analysis of Actual Cost of Mainlaying.

Item.	% of total.	
Spun iron pipes and specials	41.5	76.7
Mainlaying	35.2	
Special crossings	3.5	7.6
Other daywork	4.1	
Valves in pits and houses	3.4	7.6
Syphons	8.3	
Hatch boxes, drag wires, &c.	0.9	1.1
Sundries	0.4	
Materials unaccounted for or sold for scrap	0.7	
Site, salaries, wages, insurances	1.2	2.2
Transport	0.4	
Legal charges, wayleave expenses	0.4	
Miscellaneous, maps, stationery	0.2	
Head Office salaries and expenses	4.8	4.8
	100.0	100.0

TABLE V.—Actual and Estimating All-in Prices for Mainlaying.

Bore.	Average actual cost. Per yard.	Estimating prices. Per yard.	Per mile.
3 in.	—	11/9	£1,030
4 "	12/5.5	15/-	1,140
6 "	—	17/9	1,360
8 "	—	23/-	2,020
10 "	29/2.1	29/3	2,570
12 "	36/5.6	38/9	3,410
15 "	48/6.7	50/9	4,460
18 "	64/2.6	62/6	5,500
20 "	—	71/-	6,250
21 "	—	77/6	6,820
24 "	—	88/6	7,790

Our figures average 9½% less than those given in 1928 by Mr. Stephen Lacey in his Paper on Economic Aspects of High-Pressure Distribution, and 16% less than those contained in the 1930 Report of the Area Gas Supply Committee.

For capital charges we allow 14%, the figure taken in the Area Report. We find this confirmed in practice.

Cost of Compression.—It is customary to accept the figures for cost of compression embodied in the Area Report. We had noticed that differences arose in practice between these figures and actual performances. Approximately 40% of the cost of distribution is due to compression.

General practice has been to install a minimum number of large compressors, running at slow speeds and frequently exhausting against high back pressures. Such compressors may never work within 30% of full load, efficiencies are low, and steam requirements become excessive.

For grid work the volume of gas will permit the installation of a number of sets of varying capacities so chosen that, under any load conditions to be anticipated, all but one set can be working at constant maximum output. The odd set, which will be a small one, then takes up the minor variations in load. A major variation is met by shutting down completely one or more sets. This entails some increase in capital cost but effects considerable economies in steam consumption.

We find that actual steam requirements exceed those given in the Area Report by 22½% at 5 lb./sq.in. gauge pressure, are equal at 10 lb., and are less by 22½% at 35 lb.

Costs taken apply to non-compounded compressors with dry saturated steam at 100 lb. per sq.in. exhausting to atmosphere.

The cost of steam is by far the greater charge in the total cost of compression (approximately 70% on average). On average a variation of 1d. per 1,000 lb. will entail a 6% variation in the total cost of compression. In any large-scale scheme for compression careful thought must be given to steam-raising. Economy in steam-raising and consumption is of first importance, and far outweighs any additional capital expenditure necessary to ensure it.

The use of condensing and/or compounding equipment will materially reduce the cost of compression on all but the smallest sets. Averaged over the whole range the reduction to be expected may be taken to be:

Condensing/non-compounded, 8%.
Compounded/non-condensing, 11%.
Compounded/condensing, 20%.

Gas Engine Driven Compressors.—Where the cost of steam much exceeds 1s. per 1,000 lb. modern high-speed, high compression, vertical gas engines should be considered.

It can be shown that, per 1,000 cu.ft. compressed, at any given outlet pressure approximately 50% more lb. of steam are required than cu.ft. of gas,—*i.e.*, other costs being equal, the cost of steam per 1,000 lb. to be competitive should be only two-thirds the cost of gas per 1,000 cu.ft. Increased capital charges and maintenance costs entailed by gas engine drives must, however, be considered. It can be shown that, including these charges, steam at 1s. per 1,000 lb. compares with gas of 500 gross C.V. at 10d. per 1,000 cu.ft.

Producer gas may well prove the ideal source of power, the compressors running at constant load being so driven, those used for taking up load variations being steam driven, if necessary exhausting against a back pressure to provide process steam. We hope to investigate this further, and it may well be found that large-scale compression costs can be materially reduced in this way. The effect of any such reduction upon the economics of bulk distribution of gas are of importance.

Typical Regional Grid

We have considered the bulk distribution of gas to all undertakings in 2,000 square miles of a region typical of ten or more parts of this country, basing mainlaying costs on those obtaining in 1938/39 and using costs of compression for non-compounded/non-condensing compressors, with steam at 1s. 1¼d. per 1,000 lb. All mains follow routes which appear practicable from a large scale map, and the sizes of mains have been carefully calculated to suit the economic initial pressures.

Diagram.—The eleven works and eighty stations with their interconnecting mains were shown in the Paper by a diagram. Unfortunately this cannot be reproduced, but the Authors state that prints will be supplied on application to them where possible to anyone interested. The loads at stations and works and the length and bore of all mains are indicated.

Loads.—In 1939 the 80 undertakings made 23,200 million cu.ft.; the total future load has been taken as 55,500 million cu.ft., an increase of only 240%. 5% has been allowed for loss in transmission; 240 maximum days per year.

"*Local*" *Grids.*—We first considered eleven "local" grids, each having one works and serving from 3 to 13 undertakings. Some

(*Continued on p. 215*)

* Précis of a Paper to the Coke Oven Managers' Association, April 29.

GAS DISTRIBUTION

(*Continued from p. 210*)

cover industrial areas, some rural areas, and others mixed areas. No undertaking was omitted on account of its remoteness. The density varies from 2.7 to 7.6 miles, the cost of distribution varying from 1.83d. to 6.57d. per 1,000 cu.ft. with 1939 loads and from 1.15d. to 3.45d. for future loads, averaging 2.90d. and 1.69d. respectively over the whole region.

"Regional" Grid.—We then considered the effect of joining each of these smaller grids into one "regional" grid while retaining each of the eleven manufacturing units, providing for the interchange of gas from "local" grid to "local" grid up to one-third of the future loads. The average cost of distribution increased to 4.07d. per 1,000 cu.ft. with 1939 loads and 2.16d. with future loads.

We visualize each manufacturing works planned in units of perhaps 5 or 10 million cu.ft./day capacity. With a number of local grids there would thus be at any time a considerable surplus plant capacity at most of these works. With a regional grid this could be reduced to a minimum, an area for the moment short of gas taking part supplies from an area having surplus plant. Further, a suitably placed works might be designed especially to meet the seasonable load variations.

We therefore suggest that the additional cost of distribution with a regional grid should be rightly considered as a manufacturing charge, for only if investigation proved that manufacturing economies offset the additional distribution charges would the local grids be merged into a regional grid.

"Pit Head" Grid.—We finally considered the additional cost of supplying a number of works with bulk supplies for distribution in their local grids from a remote point, thus simulating conditions which would apply if manufacture was confined to the pit head. The additional cost of distribution is summarized in Table VI.

TABLE VI.

Works supplied from central point.	Miles of main.	Pence per 1,000 cu.ft. compressed. Present loads.	Future loads.	Mill. cu.ft. made per annum. Present loads.	Future loads.
IV*	18⅞	2.63	1.59	6,528	16,275
IV, IX	23⅜	2.50	1.51	8,384	20,547
IV, IX, II	28	2.38	1.47	9,662	23,535
IV, IX, II, III	32½	2.18	1.40	12,803	30,977
IV, IX, II, III, VIII	46⅝	2.41	1.57	14,483	34,641
IV, IX, II, III, VIII, VII	57⅛	2.92	1.78	17,261	42,009

* These figures refer to those on the diagram, which is not reproduced.

Whether the additional costs can be justified, whether manufacture on the scale necessary is practicable or desirable, would require detailed investigation.

Area Report.—In Table VII is set out a comparison between the estimated costs included in the Area Report and those for the typical grid scheme under consideration, the latter including all local grids—*i.e.*, those serving rural areas as well as industrial.

TABLE VII.—COMPARISON OF ANNUAL COSTS IN TERMS OF PENCE PER 1,000 CU.FT.

Area report. 4th year.	Area report. 8th year.	Local grids. Present.	Local grids. Future.	Regional grid. Present.	Regional grid. Future.
(a) Cost of distribution (excluding compression):					
1.33d.	0.66d.	2.33d	0.99d.	3.51d.	1.49d.
(b) Total cost of distribution (including compression):					
1.79d.	1.25d.	2.90d.	1.69d.	4.07d.	2.16d.

Conclusions

Whether the saving to be expected between the cost of gas into holder at a redundant works and at a large, fully-mechanized modern works is sufficient to meet the total cost of distribution must be determined from a study of actual figures applicable to each case. Even where there is little or no direct saving to be expected—and we are aware of many medium-sized works with exceptionally low costs—the indirect advantages to be gained from a supply of "standard" gas may be sufficient to make a bulk supply desirable.

We hope that this Paper will serve to stimulate interest in the future possibilities of bulk distribution, and we suggest that the subject is one which requires detailed study. In our opinion this can best be done by the appointment of a small technical committee within the Gas Industry to investigate the possibilities of the various types of network in one representative region.

After **providing** for depreciation of buildings and plant and the upkeep of loose plant and tools, the trading account of Ewart & Son, Ltd., for the year ended Dec. 31, 1941, showed a profit of £7,669, compared with £2,109 for the previous year. Compulsory wartime expenditure was £1,858 against £2,007, and the net profit was therefore £5,811 against £101. The Directors report that the factories and plant were fully employed during the year, and important additions were made to buildings and plant, which were maintained in satisfactory condition.

ASSOCIATION OF TAR DISTILLERS

(*Continued from p. 209.*)

Annual Report

The following abstracts from the Annual Report of the Association for the year ended Dec. 31, 1941, have been selected as of interest.

The year under review has seen a sharply increased demand for practically all tar products, directly from the war industries, and indirectly for replacement, chiefly as fuels, of imported petroleum products. When the demand for any product has exceeded potential supply the Coal Tar Controller has taken action designed to ensure the direction of supplies into essential channels. In this work he has maintained close liaison with representatives of the industry through his Advisory Committee and otherwise.

Early in the year Col. W. A. Bristow, of Low Temperature Carbonization, Ltd., was elected President of the Association. At his suggestion a reconstituted Executive Committee was formed consisting of those members of the Association who were members of the Controller's Advisory Committee. At the same time, a Tar Trade Liquid Fuel Committee was also elected, substantially on a regional basis, to deal with the many aspects of the supply of tar fuels to the Petroleum Board and, in the case of pitch, direct to consumers. A technical sub-committee also resulted from the activities of the Tar Trade Liquid Fuel Committee.

Towards the end of the year the Controller asked for the appointment of a National Creosote Committee with its own statistical officer, the object of the Committee being to co-operate with the Controller in all matters relating to the production, allocation, and distribution of creosote and coal tar fuels, with a view to doing the best possible in the national interest and helping the Controller while, at the same time, inflicting as little hardship as possible upon the producers. After joint meetings with the bodies concerned the National Creosote Committee was formed of the personnel of the Tar Trade Liquid Fuel Committee, and the functions of the Hydrogenation Committee and of the Commercial Creosote Committee were taken over by the new Committee.

With regard to naphthalene, a small *ad hoc* committee, representative of the various marketed grades of naphthalene, was formed in May and the Controller has subsequently stated that he regards this *ad hoc* committee as his advisory committee on naphthalene. It has assisted him in the formulation and subsequent revision of the price control Order on naphthalene, and is a focal point of co-operation between the makers of crude and refined naphthalene.

Tar acids, being in very strong demand for vital needs, have presented difficult and successive problems. Phenol as a finished product has been successfully dealt with by the makers, with whom the Controller has negotiated direct, but the remaining acids—crude and refined—were first considered within the Association by a specially appointed sub-committee.

Wartime Organization

As production problems came to be appreciated as of greater immediate significance than purely defence precautions, the regional committees increased the scope of their activities. The Coal Tar Controller has used the regional committees on numerous occasions. The drive for greater production of all tar products has made these committees of great value in the collection of detailed local information and in stimulating individuals to new developments. The considerably reduced amount of air attack on this country during the second half of the year has made co-operation to deal with air attack—the original purpose of the regional organization—a routine matter of formal arrangements for up-to-date collection of storage data, &c., in each region. The regional committees have thereby had a greater opportunity to deal with more positive plans for maximum efficiency of production.

Tar fuels, to the three grades specified, were supplied on an ever-increasing scale during the year to the Petroleum Board.

The total absence of the export market for pitch caused a surplus production which constituted a very acute problem in some areas, especially during the early part of the year. After considerable deliberation on the part of the Mines Department, it was eventually made clear that the individual producers were free to approach directly potential consumers of pitch as a fuel. Partly by replacing oil and partly by replacing coal, the pitch problem has been solved or considerably eased in some regions, although at the same time the shortage of labour was making it difficult to use up the vast stocks that had been accumulated in the beds. In some cases, accumulation of pitch stocks is still a real and serious problem.

Although the Association does not normally deal with labour matters, these were found, during the year under review, to have a close bearing on production problems and were discussed on numerous occasions.

The possibility of employing women for many jobs on tar distilleries was brought to members' notice, and several of the larger distilleries reported the successful employment of women on work that might not at first have been considered suitable.

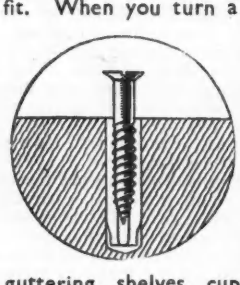
Patriotism is a blind, irrational impulse unless founded on a knowledge of the blessings we are called upon to secure and the privileges we propose to defend. (*Robert Hall*)

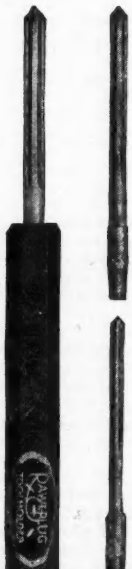
ALDER & MACKAY LTD of Edinburgh

RAWLPLUGS & RAWLPLUG TOOLS

RAWLPLUGS MAKE FIRM FIXTURES IN ANY MATERIAL

Rawlplugs are small patent tubes made of tough fibre, stiffened and treated with a secret chemical process. To fix with Rawlplugs you first make a neat small hole with the Rawlplug Tool or a drill and insert the Rawlplug, which should be an exact fit. When you turn a screw into the Rawlplug the latter expands and grips the wall like a vice, at the same time the screw is held firmly in position by a perfect thread which is automatically formed in the fibre. Rawlplugs are invaluable for fixing electric, gas or sanitary fittings, wires, cables, machinery, fuse boxes, piping, guttering, shelves, cupboards, coat-hooks, overmantels, skirting picture-rails, etc. Rawlplugs are made in all sizes and lengths to take any size screw or Coach Screw. Millions of Rawlplug Fixing Devices are used by Government Departments and Builders and Electricians everywhere. Write for Technical Literature—





THE RAWLPLUG CO. LTD.
CROMWELL ROAD, LONDON, S.W.7

RAWLPLUG TOOLS are made of the finest quality steel, exclusively manufactured to our special analysis. With Rawlplug Tools, holes in bricks, concrete, plaster, tiles, etc., can be made in the shortest possible time and without any damage to the surrounding material, thus obviating the cost and trouble of "making good."

RAWLPLUG TOOLS are specially designed for use with Rawlplugs, as they make a hole exactly the size required by the Rawlplug, thus ensuring that the plug fits perfectly, which in turn gives an absolutely firm fixing.

RAWLPLUG TOOLS are made in all sizes for use with any size of Rawlplug, e.g., a No. 8 Rawlplug Tool should be used with No. 8 Rawlplug, etc. In material such as marble, tiles, soft stone or slate which can be drilled, a Rawldrill in a brace or an ordinary Twist Drill can be used.

RAWLPLUG TOOLS do away with the laborious and most unsatisfactory method of chipping away with a cold chisel.

RAWLDRILLS (JUMPING BITS) are suitable for use in brick, concrete, tile or any hard material. They are so designed that by means of the special fluting the dust is automatically ejected from the hole that is being made. This ensures a perfect hole and prevents the tool from wedging.

Rawldrills are made of the best quality drawn steel, and they are hardened and tempered by a special process, which ensures a perfect spring temper with a dead hard point.

RAWLDRILLS are ground to an angle which facilitates re-sharpening on any piece of flat stone if a grindstone is not available. B 272

Gas Products Prices

The London Market May 4.

In addition to the Orders mentioned in our last report the following have been issued, both taking effect on May 1:

(1) The Control of Coal Tar Order, 1942—Statutory Rules and Orders, No. 732, 1942.

(2) The Naphthalene Prices (Inland) Order, 1942—Statutory Rules and Orders, No. 736, 1942.

Otherwise, there are no changes to report in the Prices of Coal Tar Products in the London Market.

The Provinces May 4.

The average prices of gas-works products during the week were: Pitch and Crude Tar,* Toluole, naked, North, 1s. 10d. (controlled by the Control of Toluene No. 2 Order, July 5, which fixes the maximum price at which this material may be sold). Coal tar, crude naphtha, in bulk, North, 11d. to 1s. Solvent naphtha, naked, North, 1s. 9d. to 1s. 10d. Heavy naphtha, North, 1s. 9d. to 1s. 10d. Creosote, *ex* works, in bulk, North, liquid and salty, 4½d. to 4¾d.; Scotland, 4¼d. to 4¾d.; low gravity, 4¼d. to 4¾d. Fuel Grade, 4d. to 4¼d. Carbolic acid, 60's, 3s. 7½d. to 3s. 9d. Naphthalene, £15 to £20. Salts, drained, £6 to £6 10s.; whizzed 72°, £7 15s.; 78°, £9 5s. Anthracene prices fixed by Controller. Heavy oil: Unfiltered anthracene oil (min. gr. 1,080), 6d. to 6½d.; filtered heavy oil (min. gr. 1,080), 6½d. to 7d.; heavy anthracene oil gr. less than 1,080, 5¾d. to 6d.

*In regard to pitch and crude tar prices we would ask readers to refer to the editorial note on p. 396 of the "JOURNAL" for Sept. 10, 1941.

Tar Products in Scotland May 2.

Several new Orders become operative as from May 1. Refined tar: Controlled prices now apply, yielding approximately 4½d. to 4¾d. per gallon, *ex* Works, naked. Creosote oil: Specification oil, 6¼d. to 6½d.; low gravity, 7d. to 7½d.; neutral oil, 6½d. to 6¾d. per gallon; all *ex* Works in bulk. Cresylic acid is now controlled and prices vary, according to quality, between 3s. 6d. and 5s. per gallon, *ex* Works, naked. Crude naphtha, 6½d. to 7d. Solvent naphtha: 90/160 grade 2s. to 2s. 3d., and 90/190 Heavy Naphtha 1s. 9d. to 2s. per gallon. Pyridines: 90/160 grade 13s., and 90/140 grade 15s. per gallon.

TRADE CARDS

FULL particulars of these spaces can be obtained on application to the Publishers. They are designed principally for the use of the firms whose display advertisements cannot be included owing to paper rationing.

YEOMANS AND PARTNERS LTD
London: 41, Upper Berkeley St., W1. PADD 9293
Specialists in difficult Building Works
Structural Camouflage—Gasholder Painting, &c.

THE WHESSOE FOUNDRY AND ENGINEERING CO. LTD.
Darlington. T/N Darlington 2734. T/A Whessoe, Darlington, and Potten End, Berkhamsted. T/N Berkhamsted 330. T/A Whessoe, Berkhamsted.
Cylindrical, Spherical, Spiral and Column Guided Gasholders. Electro-Detarrers, Washers, Purifiers, Condensers.

Arkon
INSTRUMENTS
Gas Flow Recorders and Indicators
Pressure and Vacuum Recorders and Indicators
Full Scale or Inclined Gauges
WALKER, CROSWELLER & CO. LTD.
CHELTENHAM, GLOS. Cheltenham 5172

GOODALL, CLAYTON & CO. LTD.
Leeds.
Conveyors, Elevators, Bunkers, Roofs, Hoists, &c., Coal & Coke Screening and Sizing Plants, Retort Settings, Producers, Furnaces, Repairs.

GEORGE WALLER & SON LTD.
Phoenix Iron Works, Stroud, Glos. T/N Brimscombe 2210. T/A Waller, Stroud.
Specializing in GAS EXHAUSTING MACHINERY, GAS COMPRESSOR and BOOSTING PLANT, GAS GOVERNORS, GAS VALVES, COKE BREAKERS, PAN ASH SEPARATORS.

A. G. SUTHERLAND LTD.
Warwick Road, Greet, Birmingham. T/N Victoria 2184-5. T/A Metriform, Birmingham. London: Riverside Road, S.W. 17. T/N Wimbledon 5454. T/A Insituslot, Toot, London, and at Salford and Nottingham.
GAS METERS

GILLS PRESSURE CASTINGS
215, Tyburn Road, Birmingham, 24. T/N EASt 1008
Casters in
"MAZAK" ZINC BASE ALLOYS

Permac Metal-to-metal Jointing
Sole Manufacturers:
THOMAS & BISHOP LTD.
(formerly of 37, Tabernacle Street, London, E.C. 2)
Temporary address:
39, Arthur Road, Wimbledon Park, London, S.W. 19

For every size of works and every class of coal...

WEST'S

CARBONIZING PLANTS

GLOVER-WEST VERTICALS

WESTVERTICAL CHAMBERS

440 carbonizing plants have been built or are under construction by West's in 24 countries. Working results from a wide variety of gas coals have established the high efficiency and adaptability of the West systems.

WEST'S

GAS IMPROVEMENT CO · LTD ·

MILES PLATTING MANCHESTER 10

TELEPHONE—COLLYHURST 2961-2-3-4-5 TELEGRAMS—STOKER, MANCHESTER

LONDON OFFICE TEMPORARY ADDRESS—BATH ROAD • HARMONDSWORTH · WEST DRAYTON • MIDDLESEX TEL.—WEST DRAYTON 2288-9

GAS STOCKS AND SHARES

There was a steady flow of business in the Gas Market last week and, with the few exceptions shown in the table in the fin..l column, prices remained steady. A feature was the sharp rise of 13 points in Slough 5% debenture stock to 102½, which brings it more into line with current values, although no transaction has been recorded in this stock since a year ago at 99. The only reaction was a slight drop in Imperial Continental. It is satisfactory to note that during the month of April no less than forty of the stocks and shares quoted below have appreciated in value, debenture stocks being particularly strong, while a few ordinaries were also marked up. Gas Light units closed the month 3d. lower at 12s. 9d.

The following price changes were recorded during the week:

OFFICIAL LIST

East Surrey 5 p.c. Deb.	105—110	+5	
Imperial Continental	48—53	—1	
Oriental (x.d.)	92—102	April 27	
United Kingdom Gas Corporation Ord.	14/6—16/6	+-/6d.	
Ditto 4½ p.c. 1st Pref.	16/—18/-	+-/6d.	
Uxbridge Ord. (x.d.)	95—100	April 27	

SUPPLEMENTARY LIST

North Middlesex 5 p.c. Pref. ...	82—87	+2	
Romford 4 p.c. Deb.	90—95	+2	
Slough 5 p.c. Deb.	100—105	+13	

Quotations on the London and Provincial Stock Exchanges

OFFICIAL LIST

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations April 30.
1,767,439	Mar. 9	5	5	Alliance & Dublin Ord.	94—99
374,000	Dec. 29	4	4	Do. 4 p.c. Deb. ...	95—100
957,608	Nov. 10	5	5	Assed. Gas & Water U'd'ts Ord.	15/—16/-
500,000	,,	4½	4½	Do. 4½ p.c. Red. Cum. Pref.	15/—17/-
535,545	,,	4	4	Do. 4 p.c. Red. Cum Pref.	15/—17/-
336,646	,,		4	Do. 4 p.c. Irred. Cum. Pref.	12/—14/-
561,370	Mar. 9	7	7	Barnet Ord. 7 p.c.	125—130
300,000	Oct. 27	1/4⅜	1/9⅜	Bombay, Ltd.	18/—20/-
690,407	Feb. 23	7	7	Bournemouth 7 p.c.max. ...	123—128
362,025	Dec. 15		4	Do. 4 p.c. Deb. ...	90—95
659,955	Mar. 2	2½	3⅜	Brighton, &c., 5 p.c. Con. ...	64—69
855,000	,, 16	6	6	Brit. Gas Light Ord.	71—76
545,000	Dec. 15	5½	5½	Do. 5½ p.c. 'B' Cum. Pref	105—115
120,000	,,	4	4	Do. 4 p.c. Red. Deb.	75—80
10,000	Nov. 6 '33	6	4	Cape Town, Ltd., 4½ p.c. Cu. Pf.	¼—¾
626,860	Feb. 2	6	6	Cardiff Con. Ord.	97—102
24,500	Sept. 29	7	7	Colombo 7 p.c. Pref.	19/—21/-
764,169	Mar. 23	-/11.48	-/9.56	Colonial Gas Assn. Ltd. Ord. ...	⅛—¼
400,000	,,	1/3.30	1/3.298	Do 8 p.c. Pref. ...	¾—1
1,748,935	July 22 '40	2	3	Commercial Ord.	32—37
620,000	Dec. 8	3	3	Do. 3 p.c. Deb.	58—63
286,344	Feb. 16	5	5	Do. 5 p.c. Deb.	93—98
807,560	Feb. 23	6	6	Croydon sliding scale	93—98
644,590	,,	5	5	Do. max. div.	82—87
620,385	Dec. 29	5	5	Do. 5 p.c. Perp. Deb. ...	107—112
179,500	Feb. 9	5	5	East Surrey 'B,' 5 p.c.	65—70
176,461	Dec. 15	5	5	Do. 5 p.c. Deb. (Irred.)...	105—110
250,000	Nov. 10	6	4	Gas Consolidation Ord. 'B' ...	13/6—14/6
250,000	,,	4	4	Do. 4 p.c. Red. Cum. Pref.	14/6—16/6
19,122,910	July 29 '40	3⅜	4½	Gas Light & Coke Ord. ...	12/3—13/3a
2,600,000	,,	3½	3½	Do. 3½ p.c. max.	48—53
4,477,106	,,	4	4	Do. 4 p.c. Con. Pref. ...	62—67
2,993,000	July 8 '40	3⅜	3⅜	Do. 3⅜ p.c. Red. Pref. ...	72—77
8,602,497	Dec. 1	3	3	Do. 3 p.c. Con. Deb. ...	82—85
2,642,770		5	5	Do. 5 p.c. Red. Deb. ...	105—109
2,500,000	,,	4½	4½	Do. 4½ p.c. Red. Deb. ...	103—107
700,000	Mar. 9	3½	3½	Do. 3½ Red. Deb. ...	88—93
5,600,000	May 13 '40	4	8	Imperial Continental Cap. ...	48—53
43,820	Jan. 26	3½	3½	Do. 3½ p.c. Red. Deb. ...	87—92
231,978	Feb. 23	5	5	M.S. Utility 'C' Cons.	73—78
918,657	,,	4	4	4 p.c. Cons. Pref.	77—82
675,000	Nov. 10	†4	†4	Montevideo, Ltd.	65—70
300,000	April 27	9	7	Oriental, Ltd.	92—102*
368,537	July 14	6½	3½	Plymouth & Stonehouse 5 p.c.	65—70
621,667	Feb. 9	7½	7½	Portsmouth & Gosport Cons.	87—92
648,999	Sept. 8	1/1	1/1½	Severn Val. Gas Cor. Ld. Ord.	16/—18/-
597,972	Mar. 9	4½	4½	Do. 4½ p.c. Cum. Pref. ...	16/—18/-
2,528,714	,,	1/-	7½	South East'n Gas Cn. Ld. Ord.	14/—16/-
1,000,000	,,	-/10⅝	-/10⅞	Do. 4½ p.c. Red. Cum. Pref.	15/6—17/6
1,068,869	,,	4	4	Do 4 p.c. Irred. Cum. Pref.	12/6—14/6
6,709,895	Aug. 5 '40	4	4	South Met. Ord.	48—53
1,135,812	,,	6	6	Do. 6 p.c. Irred. Pref. ...	76—81
850,000	,,	4	4	Do. 4 p.c. Irred. Pref. ...	60—65
1,895,445	Dec. 29	3	3	Do. 3 p.c. Perp. Deb. ...	77—82
1,000,000	Jan. 12	5	5	Do. 5 p.c. Red. Deb. ...	100—105
1,543,795	Feb. 9	4	4	South Suburban Ord. 5 p.c ...	75—80
512,825		5	5	Do. 5 p.c. Perp. Pref. ...	91—96
500,000	,,	4	4	Do. 4 p.c. Perp. Pref. ...	74—79
250,000	,,	3¾	3¾	Do. 3¾ p.c. Red. Pref. ...	87—92
888,587	Dec. 15	3	5	Do. 5 p.c. Perp. Deb. ...	105—110
750,541	Feb. 9	2	6	Southampton Ord.	70—75
350,000	,,	5½	5½	Swansea 5½ p.c. Red. Pref. ...	93—98
1,076,495	,,	5	5	Tottenham & District Ord. ...	83—88
338,555	,,	5	5	Do. 5 p.c. Pref.	90—95
453,380	,,	4	4	Do. 4 p.c. Perp. Deb. ...	85—90
1,247,505	Dec. 8	4	‡4	U. Kingdom Gas Cor. Ord. ...	14/6—16/6
1,085,952	Dec. 1	4½	4½	Do. 4½ p.c. 1st Cum. Pref. ...	16/—18/-
772,709	Nov. 17	4	4	Do. 4 p.c. 1st Red. Cum.Pref.	15/6—17/6
745,263	,,	4½	4½	Do. 4½ p.c. 2nd Non.Cum. Pf.	14/6—16/6
1,200,000	June 16	3½	3½	Do. 3½ p.c. Red. Deb. ...	85—90
380,608	Mar. 16	6⅝	6⅝	Uxbridge, &c., 5 p.c.	95—100*
1,371,138	April 27	4	4	Wandsworth Consolidated ...	78—83
2,525,768	Feb. 2	4	4	Do. 4 p.c. Pref.	73—78
1,343,964	Dec. ,, 15	5	5	Do. 5 p.c. Deb.	105—110
383,745	,,	4	4	Do. 4 p.c. Deb.	84—89
558,342	Mar. 2	5	5	Watford & St. Albans Ord. ...	87—92
300,000	Dec. 8	3½	3½	Do. 3½ p.c. Red. Deb. ...	84—89

SUPPLEMENTARY LIST

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations April 30.
351,685	Dec. 15	5	5	Brighton, &c., 5 p.c. Perp. Deb.	93—98
415,250	,,	4	4	Bristol Gas Co., 4 p.c. New Deb.	95—100
140,205	Feb. 9	7	7	Cambridge, &c., 7 p.c. Cons. 'B'	105—110
295,932	Mar. 9	5	5	Cheltenham, 5 p.c. Cons. Ord....	83—88
42,500	Dec. 15	4	4	Do. 4 p.c. Perp. Deb....	80—85
150,000	Feb. 23	4	4	Croydon Gas, 4 p.c. Pref. (Irr.)	68—73
130,000	Dec. 29	4	4	Do. 4 p.c. Deb. ...	80—85
146,700	Feb. 9	5½	5½	East Surrey, 5½ p.c. Pref. 'A' ...	85—90
53,220	,, 10	6	6	Do. 6 p.c. Cum. Pref. ...	90—100
...	Aug. 19 '40	6	4	Eastbourne, 'B' 3½ p.c.... ...	37—42
239,135	Nov. 17	5	5	Gas Consolidation 'A' Ord. (£1)	11/6—13/6
156,600	Feb. 23	5	5	Hampton C't, 5 p.c. Cons. Ord.	75—80
18,000	Dec. 29	3½	3½	Malta & Med'n., 7 p.c. 1st Pref.	45—55
10,845	June 30 '41	3½	3½	Do. 7½ p.c. 2nd Pref.	35—45
50,000	Feb. 23	£5 4 6	£5 4 6	Mid. South. Utili., 'A' Cons. 5 p.c.	60—70
65,000	April 27	5	5	North Middlesex, 5 p.c. Pref....	82—87*
70,000	Mar. 9	5	5	Plymouth & Stone., 5 p.c. Deb.	95—100
76,501	Dec. 29	4	4	Reading, 4 p.c. Perp. Deb. ...	90—95
74,777	Sept. 30	4	4	Romford, 4 p.c. Debs. (Reg.) ...	90—95
21,000	Dec. 15	5	5	Slough, 5 p.c. Perp. Deb. ...	100—105
211,740	,,	5	5	Southampton, 5 p.c. Red. Deb.	95—100
363,575	Jan. 2	5	5	Tottenham, 5 p.c. Reg. Red. Mt.	102—105
202,019	—	—	—	Tunbridge Wells, 4 p.c. Scale ...	95—100
135,257	Dec. 8	5	5	Uxbridge &c., 5 p.c. Perp. Deb.	103—108

PROVINCIAL EXCHANGES

					Quotations April 24.
804,948	Mar. 2	5	5	Bath Cons.	95—97
122,577	July 28	6	6	Blyth 5 p.c. Ord.	100—105
1,667,250	Feb. 23	5	5	Bristol, 5 p.c. max.	105—107
120,420	Dec. 15	4	4	Do. 1st 4 p.c. Deb.	101—103
415,250	,,	4	4	Do. 2nd 4 p.c. Deb. ...	100—102
328,790	,,	5	5	Do. 5 p.c. Deb.	110—113
157,150	Feb. 2	5	6½	Chester 5 p.c. Ord.	95—98
92,500	Dec. 15	4	4	Do. 4 p.c. Pref.	79—81
36,430	,,	3½	3½	Do. 3½ p.c. Deb.	78—82
41,890	,,	4	4	Do. 4 p.c. Red. Deb. ...	96—100
542,270	Aug. 11	9	6	Derby Cons.	98—103
55,000	Dec. 16	4	4	Do. 4 p.c. Deb.	75—80
10,000	Aug. 11	10	10	Great Grimsby 'A' Ord. ...	155—165
6,500	,,	10	10	Do. 'B' Ord. ...	155—165
79,000	,,	10	10	Do. 'C' Ord. ...	145—155
732,000	Aug. 25	4	4	Hartlepool G. & W. Cn. & New	61—63
2,167,410	Mar. 2	6	6	Liverpool 5 p.c. Ord.	104½—105½
245,500	Dec. 15	5	5	Do. 5 p.c. Red. Pref. ...	99—101
306,083	Jan. 15	4	4	Do. 4 p.c. Deb.	98—100
20,000	June 23	5	5	L ng Eaton 5 p.c. Pref.	9—11
80,000	,,	5	5	Do. 5 p.c. Deb.	87—92
2,430,267	Feb. 9	5	5½	Newcastle and Gateshead Con.	18/9—19/3
682,856	,,	4	4	Do. 4 p.c. Pref.	84½—85½
776,706	Dec. 29	3½	3½	Do. 3½ p.c. Deb.	83—84
277,285	Nov. 3	5	5	Do. 5 p.c. Deb. '43 ...	99—101
274,000	March 17	5	5	Newport (Mon.) Ord.	86—89
13,200	Sept. 16	8⅝	7	Pontyp'l Gas & W. 10 p.c. 'A'	11½—12½
13,600	,,	6	5	Do. 7 p.c. 'B'	9½—10½
40,000	,,	5	6	Do. 7 p.c. 'C'	9½—10½
106,280	Feb. 9	10	10	Preston 'A' 10 p.c.	152—162
188,219	,,	7	7	Do. 'B' 7 p.c.	111—121
1,806,339	Feb. 23	6½	6½	Sheffield Cons.	123—125*
95,000	Jan. 5	4	4	Do. 4 p.c. Deb.	96—99
332,351	Feb. 16	6	6	Sunderland 6 p.c. max. ...	111—112
192,150	Feb. 9	5	5	Weston-super-Mare Cons. ...	91—95
64,338	Jan. 5	4	4	Do. 4 p.c. Deb.	85—90
33,340	,,	7½	7½	Do. 7½ p.c. Deb. ...	140—145

a—The quotation is per £1 of Stock. * Ex. div † Paid free of income-tax. †For year.

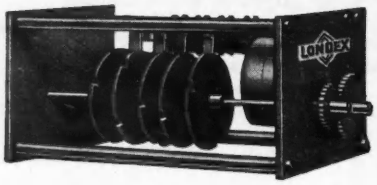
SYNCHRONOUS PROCESS TIMERS

EASILY INTER-CHANGEABLE GEAR WHEELS

●

UP TO 14 CAMS

Ask for Leaflets 92 and SPN/GJ



LONDEX LTD.

Manufacturers of Relays *Telephone : SYDenham 6258-9*

Anerley Works, 207, Anerley Road, London, S.E.20.

The Cheapest Paints per Year of Protection

"GAUNTLET" 218 ENAMELS

Definitely One-Coat Enamels for all inside and outside decoration and protection at economic prices.

ARCHD. H. HAMILTON & Co. Ltd.

BARDOWIE STREET, POSSILPARK, GLASGOW, N.

ONX FIRE CEMENT

PATCHES HOT RETORTS EFFICIENTLY!

RESISTS GREATEST HEAT

The Gas Manager says— "I always use ONX! Ive proved its worth."

TRIAL KEG FREE...

Sets like a ROCK under heat

ONX 'SUPER 83' BRAND For RETORTS

A.L.CURTIS Westmoor Works CHATTERIS Cambs.

Suspension Lighting

As installed at City of London, Glasgow, Manchester, Eastbourne, Chatham, Hove, and many other places.

Raising and Lowering gear for Gas and Electric Lamps on Swan Neck Poles, Wall Brackets, outside Shop Windows, inside Public Buildings, Churches, etc.

The LONDON ELECTRIC FIRM, CROYDON

'Phone : Uplands 4871/2

A WISE CHOICE IS AN ECONOMICAL ONE

You'll be wise to trust your Meter security to M & M Locks. These strong, rustproof locks will prove with every year of service they give you that it is cheaper to buy the best.

Write for sample M & M Lock—submit to any test:—

M&M METER LOCKS

H. MITCHELL & CO.
3 & 5, Leighton Road, London, N.W.5. Phone: GULliver2667

LASTING SECURITY IS TRUE ECONOMY

"Everything for Safety Everywhere."

SMOKE HELMETS. GAS MASKS
BREATHING APPARATUS OF ALL PATTERNS
OXYGEN RESUSCITATING APPARATUS.
FIRE EXTINGUISHERS. FIRST-AID OUTFITS
SAFETY AND PROTECTIVE APPLIANCES OF ALL DESCRIPTIONS.

SIEBE, GORMAN & CO. LTD.,
WESTMINSTER BRIDGE ROAD, LONDON, S.E.1.
Telegrams: "Siebe, Lamb, London" *Telephone No.: Waterloo 6011*

LOCOMOTIVES

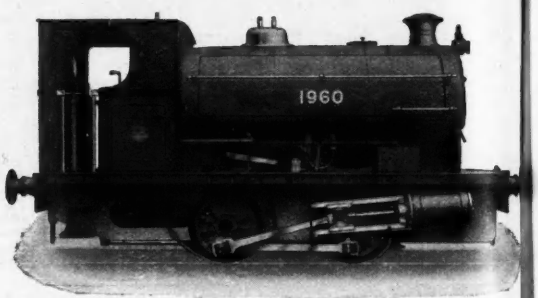
LOCOMOTIVES of all Sizes and Gauges specially constructed for Main and Branch Lines, Contractors, Docks, Gas-Works, Collieries, Iron-Works, Brick and Cement Works, &c. Locomotives of various Sizes always in progress for early delivery.

Photographs, Specifications, and prices on Application

PECKETT & SONS, Atlas Locomotive Works, LTD., BRISTOL.

Telegraphic Address: "PECKETT BRISTOL."

***London Representatives:* FERGUSON & PALMER, 9, Victoria St., Westminster, S.W.1**



CONTENTS

EDITORIAL NOTES

Fuel Rationing 239
Heating and Health 239
Location of Industry 240
"Austerity" Canteen Equipment .. 240
Limitation of Supplies 240
Institution of Gas Engineers 241

Personal 241
Obituary 241
Letter to the Editor 241
North of England Association.. .. 241
S.B.G.I. Medals 241
The Institution of Gas Engineers .. 241
Institution Gas Fellowship Reports .. 242
High Pressure Storage 245
Gas and Electrical Development in New Zealand. By A. S. Fitzpatrick .. 246
North of England Gas Managers' Association. Presidential Address of S. W. A. Wikner 251
Works Repairs and Reconstruction during Wartime. By F. Litler .. 252

Gas Products Prices 255
Gas Stocks and Shares 255

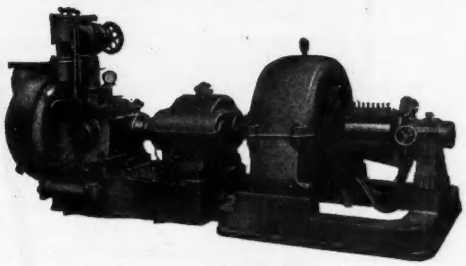
THIS WEEK'S ADVERTISERS

	PAGE
Alder & Mackay, Ltd.	256
Ascot Gas Water Heaters, Ltd.	Cover I
Ashmore, Benson, Pease & Co., Ltd.	233
Bale & Church, Ltd.	257
Blakeley, Firth, Sons & Co., Ltd....	258
Boulton Tubular Structures, Ltd....	230
Brotherhood, Peter, Ltd.	237
Clayton, Son & Co., Ltd.	226
Cowan, W. & B.	Cover III
Cox & Danks, Ltd....	235
Crane, Ltd.	231
Dempster, R. & J., Ltd.	225
Dempster, Robert, & Sons, Ltd.	244, 258
Donkin Co., Ltd. (The Bryan)	Cover II
Drakes, Ltd.	229
Ellison Insulations, Ltd.	257
Gas Meter Co., Ltd. ...	Cover IV
Gas Purification & Chemical Co., Ltd.	257
Glover, Thos., & Co., Ltd. ...	238
Goodall, Clayton & Co., Ltd. ...	255
Grant & West, Ltd.	258
Griffiths Bros. & Co. (London), Ltd.	253
Harris & Pearson, Ltd. ...	Cover IV
Harrisons (London), Ltd.	257
Holden & Brooke, Ltd.	235
Holmes, W. C., & Co., Ltd. ...	259
Humphreys & Glasgow, Ltd. ...	236
Johnson, C. H., & Sons, Ltd. ...	235
Keith Blackman, Ltd.	260
Kirkham, Hulett & Chandler, Ltd.	228
Laidlaw, R., & Son (Edin.), Ltd.	260
Main, R. & A., Ltd.	250
Mewburn, Ellis & Co.	257
Ministry of Works and Buildings...	257
New Bowson Coal Co.	257
Parkinson Stove Co., Ltd.... ...	247
Parkinson, W., & Co.	238
Peebles & Co., Ltd.	232
Pegson, Ltd.	Cover II
Photostat, Ltd.	226
Radiation, Ltd.	248, 249
Reavell & Co., Ltd.	257
Saunders Valve Co., Ltd.	230
Simon-Carves, Ltd.	227
Spencer (Melksham), Ltd.... ...	256
Strachan & Henshaw, Ltd. ...	258
Technological Institute of Great Britain	258
Trotter, Haines & Corbett, Ltd. ...	257
Walker, C. & W., Ltd.	232
West's Gas Improvement Co., Ltd.	254
Willey & Co., Ltd....	234
Williamson Cliff, Ltd. ...	Cover IV
Woodall-Duckham Co.	243
Wright, Alex., & Co., Ltd. ...	233
Trade Cards	255
Appointments Vacant	258
Contract Open	258
Educational	258
Patents	257
Plant, &c.	258
Plant, &c., For Sale and Wanted...	258

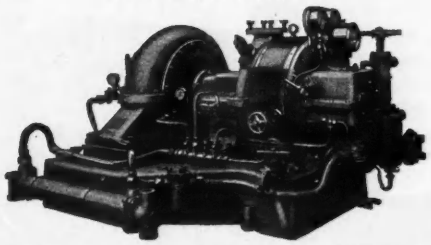
BROTHERHOOD
STEAM TURBINES FOR GASWORKS

Our Turbines, made for all powers up to 15,000 B.H.P. and for all conditions of service, are installed for driving Exhausters, Boosters, and Generators in many Gas Works, including:—

The Gas Light & Coke Co., South Suburban Gas Co., Wandsworth & District Gas Co., and in Works of Corporations and Companies at—Birmingham, Bristol, Coventry, Cardiff, Exeter, Liverpool, Manchester, Newcastle-on-Tyne, Preston, Portsmouth, Sheffield, Smethwick, Toronto, etc.



300 kW Back Pressure Geared Turbo-Generator.

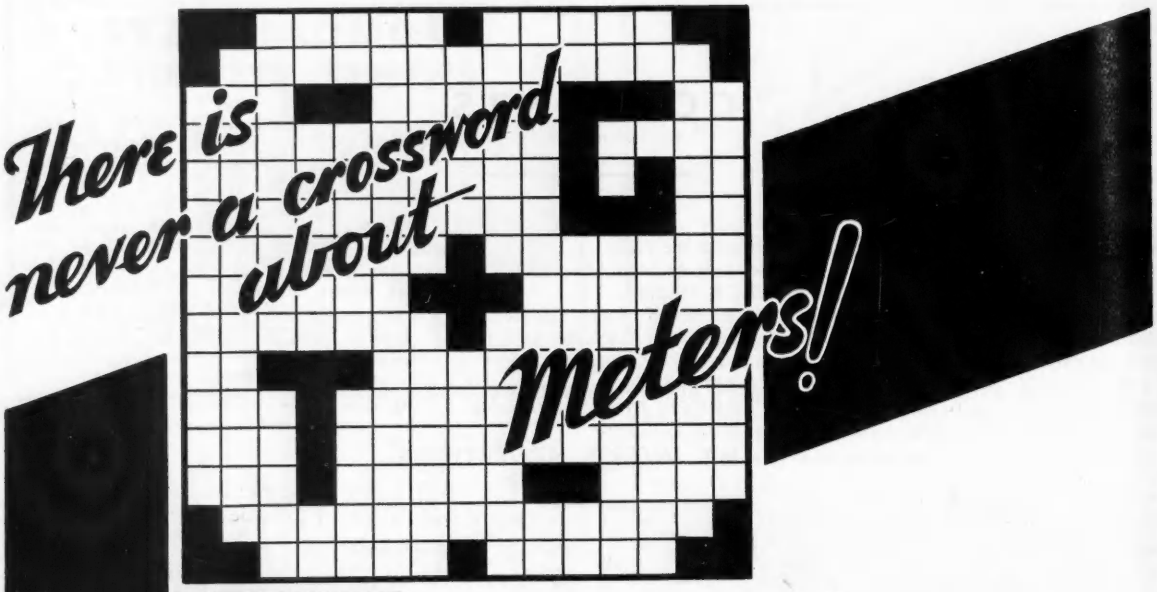


Exhauster driven by 150 B.H.P. Steam Turbine at 13,000 r.p.m.

Brotherhood plant for Gas Works also includes Reciprocating Boosters, Water Cooling Towers, Air and Gas Compressors for all pressures and capacities.

PETER BROTHERHOOD LTD

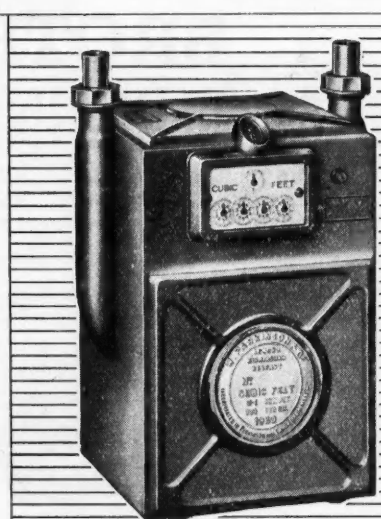
PETERBOROUGH :: Branch Offices in LONDON, LEEDS, MANCHESTER and GLASGOW



THOMAS GLOVER
·EDMONTON· & CO LTD
LONDON.N18. & BRANCHES

PARKINSON

The Meter with over 125 years' reputation . . .



THE SOCIETY OF BRITISH GAS INDUSTRIES · 1905 ·

W. PARKINSON & CO.
(Incorporated in Parkinson & Cowan (Gas Meters) Ltd.)
ESTABLISHED 1816
COTTAGE LANE,
CITY ROAD, LONDON, E.C. 1
ALSO AT BIRMINGHAM AND BELFAST

p. 5